ARCHITECTURAL AND ENGINEERING SPECIFICATIONS
Section 282310 – Digital Video Recorders and Analog Recording Devices

DR4N
4-Channel, Networkable, Digital Video Recorder

PART 2 – PRODUCTS

2.01 MANUFACTURER

A. CBC (AMERICA) Corp.
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B. This product shall be manufactured by a firm whose quality system is in compliance with ` the ISO 9001, QUALITY SYSTEM.

2.02 Description

A. The Digital Video Recorder described shall be a CBC Model number DR4N or equivalent. The unit shall be a compact, versatile and very powerful 4-ch Networkable DVR. It shall operate like a conventional multiplexer and VCR with local display monitors for live and playback viewing while the system continues to record new images. It shall have a large storage capacity, supporting up to 4 internal hard disk drive (HDD) for up to 1.2TB and external storage devices (such as a CD-R/W) via USB2 and Data backup and portability that is supported by the use of removable media (USB Memory Stick). It shall be capable of multiplexing multiple cameras utilizing an MPEG-4 compression algorithm to store images on internal HDD for fast search and retrieval either locally, or remotely over a TCP/IP network.

B. Additionally, the unit shall be designed to work within a variety of system configurations, and should fit easily into existing CCTV infrastructure. It shall be capable of operating most popular PTZ devices through the built-in RS422/485 telemetry control. It shall have integrated motion detection, analog alarm inputs and outputs, pre- and post alarm recording buffers, and the ability for e-mail notification of alarm events. Its networking features shall include PTZ control, live viewing, event log search, and multi-channel playback. It shall have advanced management and scheduling features, automatic daylight saving time adjustment, and support for continuous time correction via Network Time Protocol (NTP). It shall have multiple levels of password protection and selectable covert channel recording.

2.03 Unit Specifications

A. The DR4N shall include, but not be limited to the following:

1. The DR4N shall function as a stand-alone unit. It shall not require the use of a personal computer, special monitors, or other peripheral devices for either programming or operation. Live and recorded playback of video images shall display on conventional CCTV monitors.
2. The DR4N shall utilize RTOS (RealTime Operating System) for increased reliability.
3. The DR4N shall be capable of displaying on-screen text and menus in the English language.
4. The DR4N shall have key buttons integrated into the front panel of the unit, used for menu navigation, setup, and control of the unit, with no need for an external control device.
5. The DR4N can also be operated through the use of a Handheld IR Remote Control, which is included with the DVR.
6. The DR4N shall use an easy-to-read, on-screen menu system of pull-down and pop-up selections.
7. The DR4N shall use a battery to back up memory that stores date and time.
8. The DR4N shall support Auto Install to do the following:
    a. Automatically terminate camera inputs
    b. Automatically detect installed cameras
    c. Automatically detect loss of video signal.
9. The DR4N shall prevent unauthorized program tampering through the use of multiple password levels.
10. The DR4N shall be two units of rack space in height (2U) and capable of being rack mounted (EIA 19-inch standard), with rack mount hardware that was designed by the manufacturer to support the units.
11. The DR4N shall be provided with a UL listed low voltage, AC to DC isolated power supply to prevent susceptibility to power spikes, surges, harmonics, and other common electrical disturbance phenomena associated with the installation environment.

B. The DR4N shall have the following operational features:

1. Recording
    a. The DR4N shall record video on a hard disk drive. No videotape or videotape recorders shall be required.
        1) The DR4N shall support both internal and external hard disk drives in various configurations.
        2) Internal HDD capacity shall range from 250GB to 1.2TB, utilizing up to 4 IDE hard disk drives.

3) When using an optional internal CD-R/W drive with the DR4N, you may only use up to 3 IDE hard disk drives.

b. The DR4N shall support Manual, Scheduled, and Alarm-triggered recording.

c. The DR4N shall support user programmable picture capture rates that can be programmed on a per-camera, per hour basis. All cameras shall be programmable to capture images in one of the following operating modes:
   1) Continuously, regardless of alarm or motion conditions
   2) Alarm, triggered by an analog (dry contact) alarm input
   3) Motion, triggered by area-defined motion detection, adjustable sensitivity.
   4) Alarm, triggered by an HDD event (temperature or HDD fail)

d. At a minimum, the DR4N shall support the following global image capture rates (NTSC system) :
   1) 120 ips @ CIF resolution
   2) 60 ips @ 2CIF resolution
   3) 30 ips @ 4CIF resolution

e. The DR4N shall support an alarm record mode that is user programmable. At a minimum, it shall support the following alarm mode global image capture rates (NTSC system):
   1) 120 ips @ CIF resolution
   2) 60 ips @ 2CIF resolution
   3) 30 ips @ 4CIF resolution

f. The DR4N shall allow the user to select whether the hard disk recording should automatically overwrite data (starting with the oldest data first).

g. The DR4N shall support encoding of video using the following resolutions:
   1) 704 x 240 (4CIF)
   2) 704 x 240 (2CIF)
   3) 352 x 240 (CIF)

h. The DR4N shall have image quality settings, that are adjustable on a per camera basis by the end user, including the following:
   1) Highest (largest file size, highest quality)
   2) High
   3) Normal
   4) Low (smallest file size, lowest quality)

i. The DR4N shall support an image equal to or greater than that of a time-lapse video recorder set at the lowest setting, while maintaining all other performance criteria described in this document.

j. The DR4N shall support from zero to five (5) seconds of pre-alarm/motion recording, maintained in a buffer, and shall append this buffer to the beginning

of all recorded alarms. The DR4N shall continue to record at the alarm rate until the alarm is timed out or reset manually by the user.

k. The DR4N shall support pre and post alarm/motion recording, maintained in a buffer, and shall delete append this buffer to the beginning of all recorded events. The DR4N shall continue to record at the event rate until the programmed event duration (from zero to ninety nine seconds) expires.

l. The DR4N shall allow the user to manually or automatically customize the record rates per camera for alarm/motion detection.

m. The user shall be able to play back images smoothly at normal or fast speeds and in forward or reverse modes, without distortion.

n. The unit shall provide full media search capabilities for archiving, restoring, and playback operations. Search capabilities shall include filters for start time/dates, alarm and event occurrences, and backup images.

o. The unit shall use MPEG-4 technology to compress and store video data prior to recording onto the HDD.

p. The DR4N shall record 4 channels of audio and allow playback of one selectable audio channel.

q. The DR4N shall be able to allow or restrict audio transmission and reception over the network.

2. Archiving

a. The DR4N shall support archiving of recorded images through a USB Memory Stick or a Internal CD-RW (optional). The DR4N shall be accessible over a 10/100Mbps network using a web browser or client software.

b. The DR4N shall support the use of an internal CD drive or removable memory device through a USB interface for selective archiving of images.

c. The DR4N shall detect the type of backup devices connected, and will allow the user to choose which one to send the archive data to.

d. The DR4N shall have an on-screen progress indicator when selective archiving is accessing the archive device.

3. Multiplexing

a. The DR4N shall be a duplex type unit, allowing for always-on recording, while viewing live view or playback video.

b. The DR4N shall provide the following displays in live mode: full screen, screen rotation mode, or 4-channel view.

c. The DR4N shall provide the following displays in playback mode: full screen, screen rotation mode, or 4-channel view.

d. The DR4N shall have a covert camera feature, which removes the selected camera from live, spot, and remote view display but allows it to be recorded and viewed during playback by an authorized user.

e. The DR4N shall incorporate the following display options:

1) Camera titling with a maximum of 16 alphanumeric characters

2) Time/date formatting

4. Video motion detection

a. The DR4N shall support the following type of user-selectable video motion detection:

1) Intrusion detection, which shall be programmable by the user to be treated as an alarm.

a) The DR4N shall have 144 zones per camera, arranged in a 12 by 12 grid.

b) The DR4N shall have 10 levels of sensitivity.

5. Alarms

a. The DR4N shall support up to 4 alarm inputs (one per camera), programmable as normally open (NO) or normally closed (NC).

b. The DR4N shall support one relay as an alarm output, with a NO/NC contact, and rated for up to 1.0 A continuous.

c. The DR4N shall have a fully programmable additional audible buzzer device to alert the user to alarms, intrusion detection, video loss, and hardware components fail such as fan, HDD, network, internal memory.

d. The DR4N shall provide status relays that shall link to alarms, motion detection, and video loss.

e. The DR4N shall have an alarm history display capable of showing by the system.

f. The DR4N shall be supplied with screw-terminal connections to facilitate easy connection of alarms and other input/output signals.

g. The DR4N shall support email notification on alarm to email user accounts. The DR4N shall allow the user to program email notification in response to various conditions.

6. RS-485/422communications and networking

a. The DR4N shall provide both RS-485 and RS-422 bus and shall support RS-485/422 control to PTZ domes

b. The DR4N should control Pan, Tilt, Zoom, Focus, Iris, and Preset operation of PTZ domes.

7. Ethernet communications
    a. The DR4N shall support LAN/WAN Ethernet access.
    b. The DR4N shall support Ethernet bandwidths of 10 Mbps or 100 Mbps.
    c. The DR4N shall have built-in web server.
    d. The DR4N shall support simultaneous Ethernet access by multiple work stations connected to the LAN/WAN, as network bandwidth permits.
    e. The DR4N shall support Dynamic or Static IP addresses.
    f. The DR4N shall use web server port 80 by default, but shall also be user assignable (from 80-19999).
    g. The DR4N should support for continuous time correction via Network Time Protocol (NTP).
    h. The DR4N shall not stop recording during any Ethernet access, nor shall it be possible to remotely issue a command via Ethernet to stop the recording.
    i. The DR4N shall allow the user full programming of Ethernet parameters, including the following:
        1) DHCP (enable/disable)
        2) DDNS (enable/disable)
        3) IP address
        4) Default gateway
        5) Sub-net mask
        6) Primary Domain Name Server
        7) Backup Domain Name Server
        8) HTTP port (80-19999)

C. The DR4N shall have the following additional specifications:
    1. Video
        a. Horizontal resolution shall be 704 or 352 pixels.
        b. Vertical resolution shall be 240 or 480 pixels.
        c. Inputs
            1) Camera
                a) There shall be 4 looping camera inputs.
                b) Inputs shall use BNC connectors.
                c) Inputs shall be NTSC/EIA or PAL/CCIR compatible, depending on the model selected.
            2) Alarm
                a) There shall be 4 analog (dry contact) alarm inputs, adjustable NO/NC.

d. Outputs
    1) The DR4N shall have four monitor outputs as follows:
        a) One multi-screen (MAIN) monitor output
            i) Composite video, BNC connector
            ii) NTSC/EIA or PAL/CCIR compatible
            iii) Shall display live, playback, and programming functions
        b) One call (spot) monitor output
            i) Composite video, BNC connector
            ii) NTSC/EIA or PAL/CCIR compatible
            iii) Shall display live video
        c) S-Video output
        d) VGA output

2. The DR4N shall allow for adjustable transparency of on-screen menus.
3. The DR4N shall allow for adjustable color qualities of each video source, including:
    a. Brightness
    b. Contrast
    c. Saturation (referred to as 'Color')
    d. Tint (referred to as 'Hue')
4. The DR4N shall support automatic time synchronization, time zone setting, and DST.
5. The DR4N shall support for front panel button lock to secure the unit.
6. Electrical
    a. Input voltage: 110 VAC (60Hz) to 240VAC (50Hz), 1/0.5A
    b. Power: approximately 60 W (nominal)
7. Environmental
    a. Operating temperature range: 41 to 104°F (5 to 40°C)
    b. Relative humidity: 80% non-condensing
8. Mechanical
    a. Dimensions shall be: 360 x 66 x 360 mm (14.2" x 2.6" x 14.2"). (W x H x D)
    b. Weight shall be 5 kg. (11.0 lbs.)
9. Accessories
    a. 12v Power Adapter and Cable
    b. Users Manual
    c. Handheld IR Remote Controller
    d. Installation CD
    e. AAA Battery x 2
    f. USB Memory Stick

D. The DR4N shall conform to these internationally recognized compliance standards:
   1. FCC
   2. CE
   3. UL

2.03 Client Software

The Client software shall include, but not be limited to the following functions:

1. Client software shall support the Windows 98/2000/XP operating system.
2. Client software shall require installation of Microsoft DirectX version 7.0a or above.
3. Client software shall support viewing of up to 4 DR4N units simultaneously.
4. Client software shall support 1/4/9/16/sequence/fullscreen display in live view and 1- or 4-chanel display in playback.
5. Client software shall support various Search methods.
6. Client software shall support viewing and searching of the DVR Event Log.
7. Client software shall support remote Backup of video data from DVR.
8. Client software shall convert download image data (MPEG4) to an AVI file.
9. Client software shall print out captured images or store them as JPEG or BMP.
10. Client software shall operate PTZ domes.
11. Client software shall support remote configuration setup, and will include:
    a) Recording Setup
    b) Camera Setup
    c) Audio Setup
    d) Event/Sensor Setup
    e) System Setup
12. There exists a web browser version of the Client software, with similar functionality.
13. The web browser version of the Client software requires the download of an ActiveX control, which is done over the network, when the DVR is contacted for the first time.